

The Association between Temperament and Problem-Behavior and the moderating role of
Father-Child Attachment in Four-Year-Olds

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Onderzoek naar de relatie tussen hechting en temperament en het ontwikkelen van
gedragsproblemen in 4 jaar oude kinderen.

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Abstract

Previous research has shown that the mother child attachment and various temperament traits in children can have positive and negative outcomes in the development of the child. The aim of this study was to investigate whether Negative Affectivity was positively associated with both internalizing and externalizing behavior, Surgency was negatively associated with both behaviors problems and Effortful Control was positively associated with internalizing behavior and negatively with externalizing behavior, Moreover, it was investigated whether these associations would be different for insecurely attached children compared to securely attached children. Temperament was measured using the Child Behavior's questionnaire (CBQ), father-child attachment was measured with the Attachment Insecurity Screening Inventory (AIS) and problem behavior was measured with the Child Behavior Checklist (CBCL). Multiple regression analyses showed positive effects of father-child attachment on both internalizing and externalizing behavior. We only found a moderating effect of attachment in the association between negative affect and internalizing behavior. This indicates that children who score higher on Negative Affectivity and are insecurely attached score higher on behavior problems than the securely attached children. Effortful Control was not associated with behavior problems. Surgency seems to be positively associated with externalizing but not internalizing behavior. This was contrary to the expectations. The results of this study show that both temperament and father-child attachment are related to behavior problems and attachment could serve as a buffer in the relation between Negative Affectivity and behavior problems. Therefore, it is important that the father and child get the chance to develop a healthy attachment from birth onwards.

Keywords: temperament; attachment, father; internalizing behavior; externalizing behavior; problem behavior; children.

The Association between Temperament and Problem-Behavior and the moderating role of Father-Child Attachment in Four-Year-Olds

The psychosocial development of a child can be largely influenced by inborn traits and the environment the child grows up in (Masten & Coatsworth, 1998). An example of one of those environments, and also the earliest environment the child experiences, is the womb. A multitude of research has been concerned about the development of the child in the womb and how the mother, with her emotions and behavior, can influence the growth of her child during pregnancy (Mulder et al. 2002). However, after birth, both mothers and fathers affect the social maturation of their children. While most research is about the influence of the mother-child relationship, Lamb and Lamb (1997) studied the father-infant relationship. They found that fathers are extremely important figures in the lives of their children because they play an important role in, among other things, the development of cultural morals and help the child, in puberty, with adapting to new sexual developments. Despite the fact that the father is a very influential person in the life of their child, the father-child relationship is understudied. In this study, the association between temperament and problem behavior and the moderating effect of father-child attachment in four-year-olds will be examined.

Former research has shown that the parent-child interaction can influence the psychosocial development of the child both negatively and positively. For example, a better quality of the early mother-interaction was found to be a predictor for enhanced preschool cognitive and linguistic outcomes (Kelly, Morisset, Barnard, Hammond, & Booth, 1996). Next to this, positive maternal interactional behavior such as task orientation, positive emotion and allowance of autonomy seems to be associated with the development of positive social behavior in a child (Denham, Renwick, & Holt, 1991). An example of a negative influence is when peers and parents show negative health behavior such as drinking and not wearing a seatbelt this is associated with adolescents also showing more negative health

behavior. The effect of the parents on the adolescent is even bigger than for the peers (Lau, Quadrel, & Hartman, 1990). These studies show that parents can be an important factor when it comes to the psychosocial development of the child. The parents can influence their children in both a positive and negative way and the effects can be long-term.

Attachment

An influential theory about a specific sort of interaction between the parent and child is the attachment theory of Bowlby. The attachment theory states that a biological process in a newborn makes sure that the newborn will seek proximity to a primary caregiver (Bowlby, 2005). This is a biological instinct, which will increase the chance of survival. In order to get the attention and comfort of a caregiver, a child shows attachment behavior. Attachment behavior occurs when a child feels threatened or fearful. Healthy attachment behavior of the child will, if the attachment relationship is secure, lead to a sensitive reaction of the primary caregiver, which will decrease the discomfort of the child (Bowlby, 1988). Attachment forms in infancy but the attachment figure stays important in childhood and adolescence. It is important to underline that the development of the attachment is a reciprocal process. Both the child and the attachment-figure influence each other and the attachment bond (Bowlby, 2005).

Ainsworth and Bell (1970) have studied attachment with the strange situation procedure, in this test procedure they found that various children show different attachment behavior such as seeking or avoiding proximity of the caregiver and avoiding exploration or actively exploring the surroundings. Based on the different types of attachment behavior they have composed four types of attachment, namely: avoidant, ambivalent and disorganized attachment, which are all subtypes of insecure attachment, and secure attachment.

Early mother-child attachment has been associated with better quantity peer relationships at a higher age. Disorganized attached children show lower levels of prosocial behavior towards their peers than children who are avoidant, anxious or securely attached to

the attachment-figure. Avoidant and disorganized children score higher on asocial behavior than the other types of attachment (Seibert & Kerns, 2015). This shows that the attachment between the child and parent could be associated with the way the child behaves. If insecurely attached children show more asocial behavior and less prosocial behavior, it could be that insecurely attached children also show other kinds of behavior problems.

Behavior problems in children

It is important to have a good view on developing behavior problems in children because they can have long term negative effects. When not intervened in time, the behavior problems a child shows can get even bigger and more dangerous and can persist into adulthood (Skovgaard et al., 2007). Around 10-21 percent of children between the age of two and three are estimated to suffer from internalizing and externalizing problems. More than 50 percent of those children still suffer from these problems at the age of six (Skovgaard et al., 2007). Infants and preschoolers who show more externalizing problems have a higher risk on maladjustment and problems in school at a later age (Campbell, Shaw, & Gilliom, 2000).

Internalizing and externalizing problems or behaviors have to do with the way people cope with stress and emotions. Internalizing problems come to an existence when someone exerts too much control over his or her emotions. Internalizing behavior can be defined in two ways, firstly as social withdrawal and secondly as anxiety, depression and other psychosomatic complaints (Eisenberg et al., 2001). Internalizing problems are problems that a person experiences from within him or herself. When there is no or little control over the emotions this leads to the emotions being vented in other ways such as aggressive behavior and disobeying behavior. These behaviors are called externalizing behavior (Achenbach & Edelbrock, 1978). More often, parents seek help when their child shows externalizing behavior than when their child has internalizing problems, this is due to the fact that externalizing behavior is more obvious to parents and teachers than internalizing behavior is.

The child behavior checklist (CBCL) is a widely used questionnaire to measure externalizing and internalizing behavior in children (Achenbach & Ruffle, 2000).

Temperament

A possible predictor for behavior problems such as internalizing and externalizing behavior may be the temperament of the child. Temperament is mostly seen as a combination of individual tendencies towards anger, fear, frustration, positive affect, activity level and effortful or executive attention (Rothbart & Jones, 1998). There are three temperament dimensions that are broadly studied namely: Extraversion/Surgency, Negative Affectivity and Effortful Control (Rothbart, Ahadi, Hershey, & Fisher 2001). Surgency/Extraversion includes positive anticipation, impulsivity, increased levels of activity and a desire for sensation seeking. Surgency reflects on how generally happy and active a child is. Negative affect includes fear, frustration, sadness and anger. Negative affect reflects more on the shyness of a child and the difficulty to comfort a child. Effortful Control includes attention, inhibition and perceptual sensitivity. This domain shows the degree to which a child can focus and hold his attention (Rothbart, 2004; Rothbart & Hwang, 2005).

Temperament is a popular topic in the developmental psychology. Many researchers have studied the implications of temperament on the cognitive and psychosocial development of a child. For example, the temperament of the child at a young age seems to be a valid predictor for behavior problems in 12-year old children (Guerin, Gottfried, & Thomas, 1997). Adolescents who score lower on the temperament dimension Surgency seem to have a higher chance of experiencing internalizing behavior, while higher scores on Surgency seem to predict externalizing behavior (Oldehinkel, Hartman, De Winter, Veenstra, & Ormel 2004). Lower scores on Effortful Control have been associated with a higher chance of showing externalizing behavior. These studies show that inborn temperamental traits could be associated with problem behavior. If researchers could conclude which temperamental traits

lead to certain problem behavior it could be helpful to screen children who show these traits. In this case, it may be beneficial to start an early intervention to prevent that these behaviors arise.

Both temperament and attachment thus seem to be associated with behavior problems. But, the association between temperament and attachment has also been studied. Some researchers suggest that there is an overlap between temperament and attachment (Vaughn et al., 1992). They believe that the results of their study might be evidence for the speculation that differences in temperament are the primary cause of differences in attachment behavior. Others suggest that the temperament of the child has an effect on the way his or her parent behaves, this would have an effect on attachment (Crockenberg & Leerkens, 2006). Other researchers believe that it could also be the other way around, that the attachment of the child influences the temperament (Crockenberg & Leerkens, 2006). This implies that temperament and attachment do influence each other.

The present study

In this present study, we examine the relation between child temperament, father-child attachment and internalizing and externalizing behavior in children. In previous studies researchers have mainly focused on the mother-child attachment. In this study we will focus solely on the father and the child, namely on how father-child attachment might influence the relation between child temperament and problem behavior.

Many studies suggest that mother-child attachment and the temperament of the child have an important role in the emerging of internalizing and externalizing behavior. In addition to this, some studies suggest that there is an association between temperament and attachment. I wonder if healthy attachment could buffer the effects of temperament on behavior problems. Therefore, in this study I will look at the relationship between temperament and problem behaviors in children and whether this association might be moderated by the father-child

attachment. In this study the following question will be examined: Is there an association between temperament and internalizing and externalizing behavior in four-year-olds and is there a moderating role of father-child attachment? Based on previous research, I formulated the following hypotheses. First, I expect that insecurely attached children will score higher on internalizing and externalizing behavior than securely attached children. Second, I expect that children who score higher on Negative Affectivity will score higher on internalizing and externalizing behavior, but only if these children are insecurely attached. The third hypothesis is that children who score higher on Effortful Control will score higher on internalizing behavior, but only if these children are insecurely attached. The fourth hypothesis is that children who score high on Effortful Control will show lower scores on externalizing behavior, but only if these children are securely attached. Finally, I expect that children who score lower on Surgency will score higher on internalizing and externalizing behavior, but only if these children are insecurely attached.

Method

Procedure

The current study is a part of the ongoing longitudinal study BrainAge, a research project that examines the development of psychosocial functioning in four-year-old children in the Netherlands. BrainAge is a follow-up study to the PELS project, a longitudinal investigation that followed mothers before, during and after childbirth. These studies are unique because they include information regarding both parents, in addition to the child. The participants of this study were recruited via social media advertisements on the Internet. In the current study, only the questionnaires that father filled in are included. Questionnaires were administered in Dutch to the fathers via post or e-mail. The questionnaires can be found in the Appendix. The results of the current study are based on cross-sectional data.

Participants

In the current data there was a total of 110 participants but due to the fact that not all of the fathers filled in all the questionnaires only 98 families participated in the current assessment. Therefore I analyzed data from 98 fathers ($M_{age} = 34,08$, $SD_{age} = 5,35$) and 98 children ($M_{age} = 4,03$, $SD_{age} = .06$; 51 % girls; 98% Dutch, 1% Turkish, and 1% Antillean ancestry). All fathers who participated in this assessment provided written informed consent.

Measures

Temperament. An abbreviated, 36-item version of The Children's Behavioral Questionnaire (CBQ) was used to measure Surgency, Negative Affectivity and Effortful Control (Rothbart et al., 2001). This questionnaire was filled in by the father. Each domain is assessed with 12-items with the response options 1 (*extremely untrue of my child*) to 7 (*extremely true of my child*). Higher scores on the domains of this questionnaire indicate a higher level of a certain temperament domain. Examples of questions for the three domains are: "The child gets very frustrated when he/she is hindered in what he/she wants to do" (Negative Affectivity, $\alpha = .63$), "The child is sometimes shy in the presence of familiar people" (Surgency, $\alpha = .557$) and "He/she finds peaceful games more enjoyable than active games" (Effortful Control, $\alpha = .782$). The coefficient alpha of the entire questionnaire is .722 which means that the internal consistency of the items is acceptable (George & Mallery, 2003). The convergent validity of this questionnaire is sufficient (Rothbart et al., 2001).

Attachment. The 20-item Dutch version of the Attachment Insecurity Screening Inventory (AIS; Wissink et al. 2015) measures difficulties in attachment. A few examples of the questions that were asked are: "Is your child able to enjoy contact with you?" "Does your child respond well and remain relaxed when you touch him/her?" For each question the father could choose from six possible answers, ranging from 1 (*never*) to 6 (*being always*). By calculating the overall total score, ranging from 20 to 120, and comparing this with the cut-off

score of 46 (derived from the ROC-curve, specificity and sensitivity of 74%). Two groups were made, the children who had a total score lower than 46 were seen as securely attached and got the score 0 on the variable attachment style. The children who scored higher than 46 were seen as insecurely attached and got the score 1 on the variable attachment style. The reliability of the questionnaire was also tested with the Cronbach's alpha $\alpha = .73$ which is rated as acceptable (George & Mallery, 2003). The convergent validity of this questionnaire was sufficient (Wissink et al. 2015).

Internalizing and externalizing behavior. Both internalizing behavior and externalizing behavior can be tested with the Child Behavior Checklist for children from 1,5 to 5 years old (CBCL/1,5-5; Achenbach, 1983). This questionnaire was also filled in by the father. The sum of the scores on the subcategories Emotionally Reactive, Anxious/Depressed, Somatic Complaints and Withdrawn represent the score on Internalizing behavior. Attention/Hyperactivity problems and Aggressive behavior are the subcategories of externalizing behavior. This questionnaire consists of competence items and problem items. A few examples of the questions that were asked are: "My child is afraid to try something new" (Withdrawn) and "My child does not listen" (Aggressive Behavior). Response options were 0 (*does not apply to my child*), 1 (*sometimes applies to my child*) and 2 (*does apply to my child*). The reliability of the entire CBCL questionnaire and the subcategories was calculated with coefficient alpha. Based on the data of the current study, the entire questionnaire had a coefficient alpha of .948 which is rated as excellent. The α s for the subscales of Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Attention Problems, and Aggressive Behavior were .77, .64, .55, .73, .70 and .89, respectively. The validity of the CBCL was good according to the COTAN (Evers, Van Vliet-Mulder, & Groot, 2000).

Statistical Approach

Statistical analyses will be performed using SPSS 20.0. The dependent variable (behavior problems) was treated as continuous, the temperamental traits of the child are also continuous and attachment is dichotomous (0= securely attached, 1= insecurely attached). The first hypothesis will be analyzed with a t-test, the other hypotheses will be analyzed with multiple linear regression analyses. For each dependent variable, three multiple regression analyses were conducted. Each regression analysis has two steps, in the first step the temperament domain and attachment are included as the independent variables, in the second step the interaction term between temperament and attachment is added. A significant interaction effect suggests that the association between temperament and behavior problems is influenced by attachment and thus this would support the theory of attachment being a moderator in this association.

Results

Before the main analyses were conducted, the correlations between the variables were calculated. The correlations are summarized in Table 1. This table shows that the three domains of temperament are not significantly correlated. In this table we find some correlations that suggest that there is a positive relation between attachment and behavior problems, a positive relation between Negative Affectivity and attachment, a negative relation between Effortful Control and attachment and positive relations between Negative Affectivity and Surgency and behavior problems.

An independent samples t-test showed that the securely attached children scored significantly lower on internalizing behavior ($M = 6.53$) and externalizing behavior ($M = 10.41$) than the insecurely attached children, who had a score of 10.50 on internalizing behavior ($t = 2.63, p = 0.012$) and a score of 14.82 on externalizing behavior ($t = -2.73, p =$

.009). These findings are in line with the first hypothesis, which states that insecurely attached children experience more internalizing and externalizing behavior.

Multiple regression analyses

The results of the multiple regression analyses with problem behavior as the outcome measure and temperament and attachment as the predictors, are summarized in Table 2.

Negative Affectivity. In the regression analysis with internalizing behavior as the outcome measure and Negative Affectivity and attachment as the predictors, no significant main effects were found. However, the interaction term between the two predictors was found to be significant. This shows that the relation between Negative Affectivity and internalizing behavior is dependent of the attachment style of the child. When children score higher on Negative Affectivity and are insecurely attached to their father they have a much bigger chance of experiencing internalizing behavior than the children who score high on Negative Affectivity and are securely attached. This finding is support for the moderating role of attachment in the relation between Negative Affectivity and internalizing behavior. These findings support the second hypothesis.

In the regression analysis with externalizing behavior as the outcome measure and Negative Affectivity and attachment as the predictors, we also found a significant interaction effect between the two predictors. Children who score high on Negative Affectivity and are insecurely attached to their father have a higher chance of showing externalizing behavior than the children who score high on Negative Affectivity and are securely attached. The findings of those multiple regression analyses support the second hypothesis.

Effortful Control. In the regression analyses with internalizing and externalizing behavior as the outcome measures and Effortful Control and attachment as the predictors the results indicate that there is no association between Effortful Control and problem behavior. There is

also no evidence for a moderation effect of attachment in this association. These findings do not support the third and fourth hypotheses and thus these hypotheses are rejected.

Surgency. Results of the multiple regression analysis with internalizing behavior as the outcome measure and Surgency and attachment as the predictors indicate that Surgency is not associated with internalizing behavior. The results suggest that there is a positive relation between attachment and internalizing behavior, which shows that insecurely attached children have higher scores on internalizing behavior. There is also no evidence for a moderating role of attachment in an association between Surgency and internalizing behavior. However, we did find a positive significant association between Surgency and externalizing behavior. This is not in line with the expectation of Surgency being negatively associated with externalizing behavior. The results of these regression analyses do not support the fifth hypothesis and thus the hypothesis is rejected.

Discussion

The aim of this study was to investigate the association between temperament and problem behavior in four-year-old children and whether this association was moderated by father-child attachment. In this study, evidence was found for the hypothesis that insecurely attached children experience both more internalizing problems and externalizing problems than children who are securely attached to their father. As expected, father-child attachment moderated the relation between Negative Affectivity and both internalizing and externalizing behavior. When insecurely attached children experience more negative affect, they have a bigger chance of dealing with behavior problems than the insecurely attached children. Contrary to the expectation, the temperamental trait Surgency seems to be positively associated with externalizing behavior. We did not find evidence for an association between Surgency and internalizing behavior and Effortful Control and behavior problems. Nor, did we find evidence for a moderating role of attachment in those associations.

The finding that insecure attachment is associated with problem behavior is in line with the findings of Fearon et al. (2010), who also found that insecurely attached children are at higher risk of developing externalizing behavior. It is also in line with the study of Madigan, Atkinson, Laurin and Benoit (2013) who found that insecure attachment is associated with higher scores on internalizing behavior. Still, these studies are based on the mother-child attachment. When we compare the current study to these studies we can conclude that the father-child attachment has the same influences and seems to be as important as the mother-child attachment.

The results of this study suggest that experiencing more negative affect alone is not a valid predictor for problem behavior. When children experience relative high negative affect and are insecurely attached to their father, the children have a higher risk of showing behavior problems. Children who show more characteristics of the temperamental dimension Negative Affectivity, experience more negative emotions such as sadness and anger (Rothbart, 2002). Those feelings are a risk factor for both internalizing and externalizing behavior (Zeman, Shipman, & Suveg, 2002). Research has shown that insecurely attached people experience more difficulties with regulating those emotions. A healthy attachment bond is important in the development of regulating skills (Bowlby, 1973). When children are not able to regulate their emotions, the emotional experience will not decrease and the inner stress and the negative emotions will remain or increase (Eisenberg et al., 2002). When the stress remains high and the emotions are not effectively dealt with there is a bigger chance of children venting their emotions into their behavior, which can be seen as externalizing behavior (Achenbach, 2000). The children who show more characteristics of the trait Negative Affectivity have a higher chance of experiencing negative emotions. This is already hard for securely attached children but when the children are insecurely attached they have even more

difficulties with regulating those emotions. Therefore, these children have a higher chance of showing internalizing and externalizing behavior.

Contrary to the expectations, we found that that only Negative Affectivity and not Surgency or Effortful Control, is associated with internalizing behavior. This is partly in line with the study of Northerner, Trentacosta and McLear (2016). They studied the role of the same three temperament domains, cumulative risk and behavior problems. They found that Negative Affectivity, above all, was the biggest predictor for internalizing problems, externalizing problems and sleep problems in at-risk toddlers. In this study, low Negative Affectivity buffered the association between the risk factors and internalizing problems. The researchers found that internalizing problems aggravate by higher Negative Affectivity when the child lives in an environment with more risk factors.

Researchers suggest that Surgency and Effortful Control are positively associated with active coping and coping efficacy, while the characteristics of Negative Affectivity are positively associated with avoidant coping and negatively associated with active coping (Eaton & Bradly, 2008; Lengua et al., 1999; Lengua & Long, 2002; Thompson, Zalewski & Lengua, 2014). This suggests that the children who score higher on Surgency and Effortful Control are more likely to use problem solving coping and thus they are more likely to efficiently deal with their problems and negative emotions. The children who score higher on Negative Affectivity are more likely to use an avoidant way of coping which leads to the problem not being solved. Avoidant coping is positively associated with an increased risk of both internalizing and externalizing problems, while active coping was associated with a reduced risk at behavior problems (Liu, Tein, & Zhao 2004). Actively dealing with your problems leads to the problems being solved, therefore it will have no long-term negative effects. When children avoid the problem and pretend it is not there, nothing is solved and thus they will experience more long-term negative consequences. This could explain why, in

the current study, only an association between Negative Affectivity and internalizing behavior was found.

Contrary to the expectations, we found a positive association between Surgency and externalizing behavior. This is in line with the findings of Rothbart (2007) who found that people who score higher on Surgency are more impulsive and are more likely to show aggressive and hyperactive behavior. These behaviors are part of externalizing behavior (Rothbart, 2007). However, we did not find the expected negative association between Effortful Control and externalizing behavior. This is contrary to former research which has found that in adolescence, over controllers are more prone to experiencing internalizing behavior and under controllers are more likely to show externalizing behavior (Eisenberg et al., 2001). However, other research has shown that higher levels of Effortful Control at a young age are not associated with problem behavior at the same age but are associated with externalizing behavior in the future (Kochanska & Knaack, 2003; Murray & Kochanska, 2002). Showing more characteristics of Effortful Control at a young age may have no immediate effects on externalizing behavior but could be a risk factor for externalizing behavior at a later age. More longitudinal studies are necessary to confirm this long-term association.

Limitations and further research

This study has some limitations. One limitation is that the data for this study is based solely on parent report. The father filled in the questionnaires about the temperament of the child, the problem behaviors and the father-child attachment. It could be that the father chose to give socially desirable answers because the father thought certain behavior was seen as inappropriate. Also, the father may not be completely able to objectively look at the behavior of his child. Therefore, it could be useful in future studies to not only use questionnaires but

also include behavioral observations to have a more reliable view of the child. A second limitation is the fact that the data of the behavioral problems and temperament of the child is solely based on the view of the father. The mother may be the person who spends the most time with the kids at home, she might see more or other behavioral problems in the child. Therefore, data from both parents would be more reliable. Besides, it could also be that the child shows less or more behavioral problems in the school setting. In further research, it would be insightful to add questionnaires that are filled in by the teacher and other family members of the child to have a more complete view of the problem behavior. A third limitation is that the results of this study are based on cross-sectional data. Therefore, we are not able to say anything about the further development of the problem behaviors in those children. A study based on longitudinal data would give more insight in how externalizing and internalizing behavior in insecurely attached children will further develop. The last limitation is that, in this study, we only looked at the child being securely or insecurely attached to his or her father. We did not look at the different attachment styles. It may be that certain father-child attachment styles are more strongly associated with problem behavior. Therefore, it is recommended to add the Strange Situation Procedure.

Implications

Researchers found that, when not intervened in time, behavioral problems that occur in young children can persist into adulthood (Skovgaard, et al. 2007). Therefore, it is extremely important to intervene in time. Externalizing and internalizing behavior seem to be associated with insecure attachment and Negative Affectivity. Infant welfare centers could provide parents information about recognizing negative affect. When parents have more knowledge about this construct they are better able to seek help when something is off. The child may not know how to regulate negative feelings. For children this might reduce or prevent the risk at problem behavior.

The development of the child-parent attachment relationship starts from birth onwards. This study shows that insecure father-child attachment is associated with the mental health and behavior problems in the child. Hence, for the child it may be beneficial that his or her father is also present in the first weeks of his or her life. Currently, in the Netherlands, mothers get 16 weeks furlough to stay at home with their baby while fathers only get 2 days (<http://rijksoverheid.nl>). Prolonging the furlough of the father would give the father and child the chance to develop the attachment bond from birth onwards.

Conclusion

In sum, the results of the current study offer additional evidence for the notion that insecurely attached children and children who show more characteristics of Negative Affectivity are at higher risk of developing behavior problems at a young age. When the role of the father in the life of his child is downgraded this could have serious consequences for the children. Research has shown that healthy interactions with the father can help the child develop important skills to deal with problems and distress (Lamb & Lamb, 1997). Aid agencies for mental health should be advised to keep an eye on the role of the father in the mental health of the child.

Appendix A

Table 1
Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13
1. Attachment style	Pearson Correlation	1	-.221*	.354**	-.018	.287**	.154	.200*	.292**	.194	.297**	.305**	.299**	.282**
	Sig. (2-tailed)		.029	.000	.863	.004	.131	.048	.003	.056	.003	.002	.003	.005
2. Effortful control	Pearson Correlation	-.221*	1	-.009	.109	-.031	.010	.001	-.081	-.022	-.028	-.034	-.029	-.016
	Sig. (2-tailed)	.029		.926	.285	.765	.926	.993	.429	.829	.786	.736	.777	.876
3. Negative affectivity	Pearson Correlation	.354**	-.009	1	-.067	.448**	.340**	.158	.280**	.176	.487**	.402**	.451**	.437**
	Sig. (2-tailed)	.000	.926		.513	.000	.001	.120	.005	.083	.000	.000	.000	.000
4. Surgency	Pearson Correlation	-.018	.109	-.067	1	.047	-.137	-.012	-.347**	.228*	.171	-.131	.204*	.046
	Sig. (2-tailed)	.863	.285	.513		.647	.179	.904	.000	.024	.092	.199	.044	.652
5. Emotionally reactive	Pearson Correlation	.287**	-.031	.448**	.047	1	.501**	.447**	.533**	.495**	.785**	.828**	.785**	.840**
	Sig. (2-tailed)	.004	.765	.000	.647		.000	.000	.000	.000	.000	.000	.000	.000
6. Anxious/depressed	Pearson Correlation	.154	.010	.340**	-.137	.501**	1	.304**	.588**	.409**	.489**	.742**	.516**	.684**
	Sig. (2-tailed)	.131	.926	.001	.179	.000		.002	.000	.000	.000	.000	.000	.000
7. Somatic complaints	Pearson Correlation	.200*	.001	.158	-.012	.447**	.304**	1	.526**	.260**	.442**	.718**	.436**	.592**
	Sig. (2-tailed)	.048	.993	.120	.904	.000	.002		.000	.010	.000	.000	.000	.000
8. Withdrawn	Pearson Correlation	.292**	-.081	.280**	-.347**	.533**	.588**	.526**	1	.403**	.489**	.837**	.514**	.724**
	Sig. (2-tailed)	.003	.429	.005	.000	.000	.000	.000		.000	.000	.000	.000	.000
9. Attention Problems	Pearson Correlation	.194	-.022	.176	.228*	.495**	.409**	.260**	.403**	1	.536**	.508**	.715**	.680**
	Sig. (2-tailed)	.056	.829	.083	.024	.000	.000	.010	.000		.000	.000	.000	.000
10. Agressive Behavior	Pearson Correlation	.297**	-.028	.487**	.171	.785**	.489**	.442**	.489**	.536**	1	.725**	.973**	.879**
	Sig. (2-tailed)	.003	.786	.000	.092	.000	.000	.000	.000	.000		.000	.000	.000
11. Internalizing Behavior/Problems	Pearson Correlation	.305**	-.034	.402**	-.131	.828**	.742**	.718**	.837**	.508**	.725**	1	.738**	.917**
	Sig. (2-tailed)	.002	.736	.000	.199	.000	.000	.000	.000	.000	.000		.000	.000
12. Externalizing Behavior/problems	Pearson Correlation	.299**	-.029	.451**	.204*	.785**	.516**	.436**	.514**	.715**	.973**	.738**	1	.913**
	Sig. (2-tailed)	.003	.777	.000	.044	.000	.000	.000	.000	.000	.000	.000		.000
13. Total behavior problems	Pearson Correlation	.282**	-.016	.437**	.046	.840**	.684**	.592**	.724**	.680**	.879**	.917**	.913**	1
	Sig. (2-tailed)	.005	.876	.000	.652	.000	.000	.000	.000	.000	.000	.000	.000	

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Table 2
Multiple regressions of temperament and problem behavior in four-year-olds

Outcome measure		Model 1				Model 2				ΔR^2
		R	B	t	p	B	t	p		
Internalizing behavior	NA	.192	.24	3.41	.001	.14	1.81	.074	.004	
	AT		2.42	1.88	.063	1.51	1.14	.255		
	NAxAT					.35	2.32	.023		
Externalizing behavior	NA	.226	.31	4.09	.000	.19	2.17	.032	.062	
	AT		2.35	1.65	.103	1.11	.77	.443		
	NAxAT					.48	2.87	.005		
Internalizing behavior	EC	.094	.20	.35	.731	-.025	-.034	.737	.010	
	AT		4.07	3.12	.002	4.24	3.23	.002		
	ECxAT					.112	1.01	.317		
Externalizing behavior	EC	.091	.026	.388	.699	-.057	-.69	.492	.026	
	AT		4.54	3.06	.003	4.86	3.28	.001		
	ECxAT					.224	1.65	.103		
Internalizing behavior	SUR	.109	-.097	-1.30	.198	-.052	-.557	.579	.006	
	AT		3.94	3.13	.002	3.93	3.11	.002		
	SURxAT					-.125	-.800	.426		
Externalizing behavior	SUR	.133	.183	2.19	.031	.205	1.95	.054	.001	
	AT		4.47	3.17	.002	4.47	3.15	.002		
	SURxAT					-.061	-.347	.730		

Note. NA= Negative Affectivity, EC= Effortful Control, SUR= Surgency, AT= Attachment. The results in bold are significant.

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Appendix B

Gedragsvragenlijst voor kleuters (CBQ)

Instructie

Op de volgende bladzijden staat een aantal uitspraken die de reacties van kinderen in verschillende situaties beschrijven. Wilt u aangeven wat de reactie van uw kind in deze situaties (waarschijnlijk) zal zijn? Er zijn natuurlijk geen ‘juiste’ reacties: kinderen verschillen enorm en juist over die verschillen proberen wij meer te weten te komen.

Leest u alstublieft elke uitspraak goed door en geeft u aan of deze uitspraak wel of niet van toepassing is op de reactie(s) van uw kind in de afgelopen zes maanden. Gebruik de volgende schaal om aan te geven in hoeverre een uitspraak het gedrag van uw kind beschrijft:

1	2	3	4	5	6	7	X
Helemaal niet van toepassing	Bijna niet van toepassing	Een beetje van toepassing	Soms wel, soms niet van toepassing	Tamelijk van toepassing	Grotendeels van toepassing	Volledig van toepassing	Nooit in die situatie gezien

Wanneer u een vraag niet kunt beantwoorden, omdat u uw kind nooit in die situatie heeft gezien (bijvoorbeeld als gevraagd wordt hoe uw kind reageert wanneer u zingt, maar u zingt nooit voor haar), omcirkelt u dan X (Nooit in die situatie gezien).

Controleert u alstublieft of alle vragen zijn omcirkeld.

Mijn kind:

- | | | | | | | | | | |
|---|---|---|---|---|---|---|---|-----|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | | |
| | | | | | | | | (1) | Lijkt altijd haast te hebben om van de ene plek naar de andere te gaan |
| | | | | | | | | (2) | Raakt erg gefrustreerd wanneer iemand haar belemmert in wat zij wil doen |
| | | | | | | | | (3) | Is erg geconcentreerd bezig wanneer zij tekent of kleurt |
| | | | | | | | | (4) | Glijdt graag van hoge glijbanen af, of doet andere spannende dingen graag |

- | | | | | | | | | | |
|---|---|---|---|---|---|---|---|------|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (5) | Is erg van streek door een sneetje of blauwe plek |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (6) | Bereidt zich voor op uitstapjes door uit te zoeken wat zij nodig zal hebben |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (7) | Stort zich vaak in nieuwe situaties |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (8) | Wordt droevig als gezinsplannetjes niet uitkomen |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (9) | Vindt het leuk als iemand voor haar zingt |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (10) | Voelt zich bij bijna iedereen op haar gemak |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (11) | Is bang voor inbrekers of "spoken" |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (12) | Merkt het op wanneer haar ouders iets nieuws aan hebben |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (13) | Vindt rustige spelletjes leuker dan actieve |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (14) | Als zij boos is, duurt dat meestal tien minuten of langer |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (15) | Wanneer zij iets bouwt of in elkaar zet, gaat zij er helemaal in op en werkt dan lang door |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (16) | Gaat graag hard en hoog op de schommel |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (17) | Lijkt terneergeslagen wanneer zij iets niet kan |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (18) | Volgt instructies goed op |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (19) | Doet er lang over zich in nieuwe situaties te begeven |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (20) | Klaagt zelden wanneer zij verkouden is |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (21) | Vindt de klank van woorden prettig, zoals rijmpjes |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (22) | Is soms zelfs verlegen bij mensen die zij al lang kent |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (23) | Is erg moeilijk te kalmeren wanneer zij van streek is |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (24) | Heeft snel door wanneer er iets nieuws in de huiskamer staat |

- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (25) Zit boordevol energie, zelfs 's avonds |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (26) Is niet bang in het donker |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (27) Gaat soms helemaal op in een plaatjesboek en blijft er lange tijd in kijken |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (28) Houdt niet van wilde en ruwe spelletjes |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (29) Raakt niet erg van streek van sneetjes of blauwe plekken |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (30) Benadert plekken waarvoor zij is
gewaarschuwd

langzaam en voorzichtig |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (31) Beslist rustig en ongehaast over haar volgende stappen |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (32) Wordt boos wanneer zij een speeltje niet kan vinden |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (33) Vindt het prettig om zachtjes te wiegen of te schommelen |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (34) Wendt zich soms verlegen af van nieuwe kennissen |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (35) Raakt van streek als geliefde vrienden of kennissen na een bezoek vertrekken |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | X | (36) Zegt er iets van als één van haar ouders iets aan

het uiterlijk veranderd heeft |

Gedrag van uw kind (AISI)

De bedoeling van deze vragen is om de mate van gehechtheid van uw kind na te gaan. U wordt vriendelijk verzocht deze vragen alleen, zonder overleg met anderen, in te vullen. Wilt u het vakje van het meest passende antwoord aankruisen?

		Nooit	Soms	Regelmatig	Vaak	Zeerv vaak	Altijd
1.	Probeer uw kind u te dwingen om te doen wat hij/zij wil?						
2.	Is uw kind overdreven volgbaar en gehoorzaam?						
3.	Reageert uw kind soepel en ontspannen op een aanraking van u?						
4.	Wil uw kind in een spel met u de controle hebben?						
5.	Vindt uw kind het prettig om door u geknuffeld te worden?						
6.	Klampt uw kind zich aan u vast?						
7.	Gaat uw kind de strijd met u aan wanneer iets anders gaat dan hij/zij verwacht?						
8.	Staat uw kind toe dat u hem/haar troost wanneer hij/zij zich pijn heeft gedaan, bang is of van streek is?						
9.	Vraagt uw kind hulp aan u als hij/zij een probleem heeft?						
10.	Is uw kind overbezorgd wanneer er iets aan de hand is met u?						
11.	Lukt het uw kind makkelijk om na scheiding van u contact met u te maken?						
		Nooit	Soms	Regelmatig	Vaak	Zeerv vaak	Altijd
12.	Wil uw kind overmatig veel zelf bepalen?						
13.	Reageert uw kind overmatig emotioneel als u even bij hem/haar weggaat?						
14.	Kan uw kind genieten van het contact met u?						
15.	Geeft uw kind aan neergezet, maar ook gelijk weer opgepakt te willen worden?						
16.	Houdt uw kind u sterk in de gaten wanneer u in of rond het huis aanwezig bent?						
17.	Omhelst of knuffelt uw kind u spontaan?						
18.	Wordt uw kind snel boos op u?						
19.	Is uw kind speels en opgewekt in uw aanwezigheid?						
20.	Is uw kind erg afhankelijk van uw bevestiging of het iets goed doet?						

Gedrag van uw kind (CBCL)

We willen u vragen de volgende uitspraken over uw kind in te vullen zoals u uw kind ziet, ook al komt dat niet overeen met wat anderen vinden. Graag alle vragen beantwoorden.

Hieronder is een lijst met vragen over kinderen. Alle vragen gaan over hoe dit kind nu is of in de afgelopen 2 maanden is geweest. Wilt u het vakje van het meest passende antwoord aankruisen? Zet een kruisje in het hokje met ‘duidelijk of vaak’ als de vraag duidelijk of vaak bij dit kind past. Zet een kruisje in het hokje met ‘een beetje of soms’ als de vraag een beetje of soms bij dit kind past. Als de vraag helemaal niet bij dit kind past, zet dan een kruisje in het hokje met ‘helemaal niet’. Beantwoord alle vragen zo goed als u kunt, ook al lijken sommige vragen niet bij dit kind te passen.

		Helemaal niet	Een beetje of soms	Duidelijk of vaak
1.	Pijnklachten (zonder medische oorzaak, geen buikpijn of hoofdpijn)			
2.	Doet te jong voor zijn/haar leeftijd			
3.	Is bang om iets nieuws te proberen			
4.	Vermijdt anderen aan te kijken			
5.	Kan zich niet concentreren, kan niet lang de aandacht ergens bij houden			
6.	Kan niet stilzitten, is onrustig of hyperactief			
7.	Kan er niet tegen wanneer dingen ergens anders staan			
8.	Kan niet tegen wachten, alles moet nu gebeuren			
9.	Kauwt op dingen die niet eetbaar zijn			
10.	Klampt zich vast aan volwassenen of is te afhankelijk			
11.	Zoekt voortdurend hulp			
12.	Obstipatie, heeft geen ontlasting (zonder dat hij/zij ziek is)			
13.	Huilt veel			
14.	Wreed tegen dieren			
15.	Uitdagend			
16.	Wil in alles direct zijn/haar zin hebben			
17.	Vernielt eigen spullen			
18.	Vernielt spullen van gezinsleden of van andere kinderen			
19.	Diarree of dunne ontlasting (zonder dat hij/zij ziek is)			
20.	Ongehoorzaam			
21.	Verstoord wanneer iets anders gaat dan hij/zij gewend is			
		Helemaal niet	Een beetje of soms	Duidelijk of vaak
22.	Wil niet alleen slapen			
23.	Geeft geen antwoord wanneer anderen tegen hem/haar praten			

24.	Eet niet goed			
25.	Kan niet opschieten met andere kinderen			
26.	Kan geen pret maken, doet als een kleine volwassene			
27.	Lijkt zich niet schuldig te voelen na zich misdragen te hebben			
28.	Wil het huis niet uit			
29.	Snel van streek als iets tegenzit			
30.	Snel jaloers			
31.	Eet of drinkt dingen die eigenlijk niet eetbaar of drinkbaar zijn – snoep niet meetellen			
32.	Is bang voor bepaalde dieren, situaties of plaatsen			
33.	Voelt zich snel beledigd of gekwetst			
34.	Bezeert zich vaak, krijgt vaak ongelukken			
35.	Vecht veel			
36.	Bemoeit zich met alles			
37.	Raakt te veel overstuur wanneer hij/zij gescheiden wordt van zijn/haar ouders			
38.	Heeft moeite met inslapen			
39.	Hoofdpijnen (zonder medische oorzaak)			
40.	Slaat anderen			
41.	Houdt zijn/haar adem in			
42.	Doet dieren of mensen zonder opzet pijn			
43.	Ziet er ongelukkig uit zonder duidelijke reden			
44.	Boze buien			
45.	Misselijk (zonder medische oorzaak)			
46.	Zenuwachtige bewegingen of zenuwtrekken			
47.	Nerveus, zenuwachtig of gespannen			
48.	Nachtmerries			
49.	Eet te veel			
50.	Is erg moe			
51.	Is in paniek zonder duidelijke reden			
52.	Pijnlijke ontlasting (zonder medische oorzaak)			
53.	Valt mensen lichamelijk aan			
54.	Pulkt aan neus, huid of aan iets anders van het lichaam			
		Helemaal niet	Een beetje of soms	Duidelijk of vaak
55.	Speelt te veel met eigen geslachtsdelen			
56.	Onhandig of stuntelig			
57.	Oogproblemen (zonder medische oorzaak)			
58.	Straffen verandert zijn/haar gedrag niet			
59.	Gaat snel over van de ene bezigheid naar de andere			
60.	Huiduitslag of andere huidproblemen (zonder medische oorzaak)			

61.	Weigert om te eten			
62.	Weigert om actieve spelletjes te spelen			
63.	Bonkt steeds met hoofd of wiegt met lichaam			
64.	Verzet zich 's avonds met naar bed gaan			
65.	Verzet zich tegen zindelijk worden			
66.	Schreeuwt veel			
67.	Lijkt niet te reageren op liefde of genegenheid			
68.	Schaamt zich gauw of voelt zich niet op zijn/haar gemak			
69.	Egoïstisch, wil niet delen			
70.	Toont weinig liefde of genegenheid voor anderen			
71.	Toont weinig belangstelling voor dingen om zich heen			
72.	Toont te weinig angst om zich te bezeren			
73.	Te verlegen of timide			
74.	Slaapt overdag en/of 's nachts minder dan de meeste kinderen			
75.	Smeert of speelt met ontlasting			
76.	Spraakprobleem			
77.	Staart voor zich uit of lijkt volledig in beslag genomen			
78.	Buikpijn of krampen (zonder medische oorzaak)			
79.	Snelle wisselingen tussen verdriet en opwinding			
80.	Vreemd gedrag			
81.	Koppig, stuurs of prikkelbaar			
82.	Stemming en gevoelens veranderen plotseling			
83.	Mokt veel			
84.	Praat of schreeuwt in slaap			
85.	Driftbuien of snel driftig			
86.	Overdreven netjes of te schoon			
		Helemaal niet	Een beetje of soms	Duidelijk of vaak
87.	Te angstig of te bang			
88.	Werkt niet mee			
89.	Weinig actief, beweegt zich langzaam of te weinig energie			
90.	Ongelukkig, verdrietig of depressief			
91.	Meer dan gewoon luidruchtig			
92.	Van streek door onbekende mensen of situaties			
93.	Overgeven (zonder medische oorzaak)			
94.	Wordt 's nachts vaak wakker			
95.	Loopt weg			
96.	Wil veel aandacht			
97.	Zeuren			
98.	Teruggetrokken, gaat niet met anderen om			
99.	Maakt zich zorgen			

100. Schrijf hier ieder ander probleem op dat het kind heeft en dat hierboven nog niet genoemd is:

.....

.....

.....

101. Heeft uw kind een lichamelijke of verstandelijke handicap?

Nee

Ja – graag opschrijven:

.....

.....

.....

102. Waarover maakt u zich het meest zorgen wat uw kind betreft?

.....

.....

.....

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